reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. As discussed in section IV.C.2.c, dilution credits for calculation of effluent limitations based on aquatic life are not being granted. This Order contains a final AMEL and MDEL for ammonia of 1.2 mg/L and 2.1 mg/L, respectively, based on the National Ambient Water Quality Criteria for the protection of freshwater aquatic life (see Attachment F, Table F-6 for WQBEL calculations).

Based on the sample results for the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995 (see Basin Plan at page IV-16). The WQBELs for ammonia are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the ammonia effluent limitations is established in the Order.

An interim performance-based maximum daily effluent limitation of 18 mg/L has been established in this Order. The interim limitation was determined as described in Attachment F, Section IV.E.1., and is in effect through **31 January 2014**. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final ammonia effluent limitations. In addition, the Discharger shall prepare and implement a pollution prevention plan that is in compliance with CWC section 13263.3(d)(3).

h. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethylhexyl) phthalate is used primarily as one of several plasticizers in polyvinyl chloride (PVC) resins for fabricating flexible vinyl products. According to the Consumer Product Safety Commission, USEPA, and the Food and Drug Administration, these PVC resins are used to manufacture many products, including soft squeeze toys, balls, raincoats, adhesives, polymeric coatings, components of paper and paperboard, defoaming agents, animal glue, surface lubricants, and other products that must stay flexible and noninjurious for the lifetime of their use. The State MCL for bis (2-ethylhexyl) phthalate is 4 µg/L and the USEPA MCL is 6 µg/L. The NTR criterion for Human health protection for consumption of water and aquatic organisms is 1.8 µg/L and for consumption of aquatic organisms only is 5.9 µg/L.

The MEC for bis (2-ethylhexyl) phthalate was 55 µg/L, based on 31 samples collected between 1 November 2005 and 30 April 2008. Of the 31 samples collected, bis (2-ethylhexyl) phthalate was detected 26 times. While the MEC of 55 µg/L is much higher than the remaining detectable concentrations, those detectable concentrations ranged 1 µg/L to 16 µg/L and exceeded the CTR

criterion on 23 occasions. Studies conducted by the Discharger indicate that the use of intravenous (IV) bags at the local convalescent home and hospital may potentially be one of the sources of bis (2-ethylhexyl) phthalate at the Facility. Bis (2-ethylhexyl) phthalate was not detected in the receiving water, based on two samples collected on 2 May 2007 and 2 January 2008. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NTR criterion for bis (2-ethylhexyl) phthalate.

The ambient monitoring demonstrates the receiving water has assimilative capacity for bis (2-ethylhexyl) phthalate. As described in section IV.C.2.c, a dilution credit for bis (2-ethylhexyl) phthalate of up to 20:1 can be granted, based on the available human health dilution. This Order includes an AMEL and MDEL for bis (2-ethylhexyl) phthalate of 25 µg/L and 68 µg/L, respectively, based on the NTR criterion for the protection of human health (see Attachment F, Table F-7 for WQBEL calculations). Based on the sample results for the effluent, it appears the Discharger can meet these new limitations.

i. **Chlordane.** Chlordane is a persistent chlorinated hydrocarbon pesticide. The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The CTR contains a numeric criterion for chlordane of 0.00057 µg/L for freshwaters from which both water and organisms are consumed. The CTR also contains numeric criteria for chlordane of 0.0043 µg/L as a 4-day average (chronic) and 2.4 µg/L as a 1-hour average (acute) for the protection of freshwater aquatic life.

Chlordane was sampled on 2 January 2008 using EPA Method 608 and EPA Method 505. Using EPA Method 608, chlordane was not detected with a reporting limit of 0.05 µg/L and an MDL of 0.04 µg/L. Using EPA Method 505, chlordane was detected at a concentration of 0.12 µg/L with an MDL of 0.02 µg/L. Although chlordane was not detected using EPA Method 608, the detection of chlordane using the more sensitive test method, EPA Method 505, indicates a reasonable potential to exceed the Basin Plan objective for persistent chlorinated hydrocarbon pesticides. Effluent Limitations for chlordane are included in this Order and are based on the Basin Plan objective of no detectable concentrations of persistent chlorinated hydrocarbon pesticides. Since the Basin Plan objective is no detectable concentrations, there can be no assimilative capacity. The limitation for chlordane is included in this Order based on reasonable potential to cause or contribute to an in-stream excursion of the water quality objective.

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. A time schedule for compliance with

the chlordane final effluent limitations is established in Time Schedule Order (TSO) No. **R5-2009-0008** in accordance with CWC sections 13300 and 13385. Order No. **R5-2009-0008** also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

j. **Chlorine Residual.** USEPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for chlorine. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine are 0.011 µg/L and 0.019 µg/L, respectively. The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses sodium bisulfate to dechlorinate the effluent prior to discharge to the North Fork Calaveras River. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The USEPA *Technical Support Document for Water Quality-Based Toxics Control* [EPA/505/2-90-001] contains statistical methods for converting chronic (4-day) and acute (1-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average 1-hour limitation is considered more appropriate than an average daily limitation. Average 1-hour and 4-day limitations for chlorine, based on these criteria, are included in this Order. Based on data reported during the previous permit term, it appears as if the Discharger can immediately comply with these new effluent limitations for chlorine residual.

The Facility discharges through a diffuser to the North Fork Calaveras River. The chlorine residual limitations required in this Order are protective of aquatic organisms in the undiluted discharge. If compliance is maintained, the Regional Water Board does not anticipate residual chlorine impacts to benthic organisms.

k. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The USEPA default conversion factors for copper in freshwater are 0.96 for both the acute and the chronic criteria. Using the worst-case measured hardness from the effluent as described in section IV.C.2.b (59 mg/L as $CaCO_3$) and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum 4-day average concentration) is 5.9 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is 8.5 µg/L, as total recoverable.

The MEC for total copper was 32 µg/L, based on 31 samples collected between 1 November 2005 and 30 April 2008, while the maximum observed upstream receiving water total copper concentration was 1.1 µg/L, based on two samples

collected on 2 May 2007 and 2 January 2008. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. Ambient monitoring data indicates that there is no assimilative capacity available. Additionally, as described in section IV.C.2.c, dilution credits for calculation of effluent limitations based on aquatic life are not being granted. An AMEL and MDEL for total copper of 5.4 µg/L and 7.9 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Attachment F, Table F-8 for WQBEL calculations).

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. A time schedule for compliance with the copper final effluent limitations is established in Time Schedule Order (TSO) No. **R5-2009-0008** in accordance with CWC sections 13300 and 13385. Order No. **R5-2009-0008** also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

l. **Cyanide.** The CTR includes maximum 1-hour average and 4-day average cyanide concentrations of 22 µg/L and 5.2 µg/L, respectively, for the protection of freshwater aquatic life. The MEC for cyanide was 37 µg/L, based on two samples collected on 2 May 2007 and 2 January 2008, while cyanide was not detected in the receiving water, based on two samples collected on 2 May 2007 and 2 January 2008. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for cyanide. As discussed in section IV.C.2.c, dilution credits for calculation of effluent limitations based on aquatic life are not being granted. An AMEL and MDEL for cyanide of 4.3 µg/L and 8.5 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Attachment F, Table F-9 for WQBEL calculations).

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. A time schedule for compliance with the cyanide final effluent limitations is established in Time Schedule Order (TSO) No. **R5-2009-0008** in accordance with CWC sections 13300 and 13385. Order No. **R5-2009-0008** also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

m. **Diazinon.** The Basin Plan requires the Regional Water Board to consider relevant numerical criteria and guidelines developed by other agencies in determining compliance with the narrative toxicity objective (Basin Plan, IV-17.00). In March 2000, the California Department of Fish and Game (DFG) established acute and chronic criteria for diazinon to protect fresh water aquatic life. The acute (1-hour average) and chronic (4-day average) criteria are 0.08 µg/L and 0.05 µg/L, respectively.

The MEC for diazinon was 0.42 µg/L, based on 16 samples collected between 1 November 2005 and 30 April 2008, while diazinon was not detected in the receiving water, based on four samples collected on 2 May 2007 and 2 January 2008. Therefore, diazinon in the discharge has a reasonable potential

to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life resulting in a violation of the Basin Plan's narrative toxicity objective. As discussed in section IV.C.2.c, dilution credits for calculation of effluent limitations based on aquatic life are not being granted. An AMEL and MDEL for diazinon of 0.03 µg/L and 0.08 µg/L, respectively, are included in this Order based on DFG's diazinon criteria for the protection of freshwater aquatic life (see Attachment F, Table F-10 for WQBEL calculations).

Based on the sample results for the effluent, it appears that the Discharger may be in immediate non-compliance upon issuance of the permit. New or modified control measures may be necessary in order to comply with the effluent limitations, and the new or modified control measures cannot be designed, installed and put into operation within 30 calendar days. The Basin Plan for the Sacramento and San Joaquin River Basins includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives adopted after 25 September 1995 (see Basin Plan at page IV-16). The WQBELs for diazinon are based on a new interpretation of the narrative standard for protection of receiving water beneficial uses. Therefore, a compliance schedule for compliance with the diazinon effluent limitations is established in the Order.

An interim performance-based maximum daily effluent limitation of 2.8 µg/L has been established in this Order. The interim limitation was determined as described in Attachment F, Section IV.E.1., and is in effect through **31 January 2014**. As part of the compliance schedule, this Order requires the Discharger to submit a corrective action plan and implementation schedule to assure compliance with the final diazinon effluent limitations. In addition, the Discharger shall prepare and implement a pollution prevention plan that is in compliance with CWC section 13263.3(d)(3).

n. **Dichlorobromomethane.** The CTR includes a dichlorobromomethane criterion of 0.56 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for dichlorobromomethane was 1.6 µg/L, based on 31 samples collected between 1 November 2005 and 30 April 2008, while dichlorobromomethane was not detected in the receiving water, based on two samples collected on 2 May 2007 and 2 January 2008. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane.

The ambient monitoring demonstrates the receiving water has assimilative capacity for dichlorobromomethane. As described in section IV.C.2.c, a dilution credit for dichlorobromomethane of up to 20:1 can be granted, based on the available human health dilution. An AMEL and MDEL for dichlorobromomethane of 9.7 µg/L and 22 µg/L, respectively, are included in this Order based on the CTR criterion for the protection of human health (see Attachment F, Table F-11 for WQBEL calculations). Based on the sample results for the effluent, it appears the Discharger can meet these new limitations.

o. **Iron.** The Basin Plan water quality objectives for chemical constituents requires that water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in Title 22 of the CCR. The Secondary MCL - Consumer Acceptance Limit for iron is 300 µg/L. Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are to applied as an annual average concentration.

The maximum annual average effluent concentration for iron was 382 µg/L, based on 29 samples collected between 1 November 2005 and 30 April 2008. The maximum annual average upstream receiving water iron concentration was 448 µg/L, based on two samples collected on 2 May 2007 and 2 January 2008. The maximum annual average receiving water and effluent concentrations were used in the RPA for evaluating the secondary MCL based on input from the DPH and the fact that MCLs are designed to protect human health over long exposure periods. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL for iron. Ambient monitoring data indicates that there is no assimilative capacity available. An annual average effluent limitation of 300 µg/L for iron is included in this Order based on protection of the Basin Plan's narrative chemical constituents objective (see Attachment F, Table F-12 for WQBEL calculations).

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. A time schedule for compliance with the iron final effluent limitations is established in Time Schedule Order (TSO) No. **R5-2009-0008** in accordance with CWC sections 13300 and 13385. Order No. **R5-2009-0008** also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

p. **Manganese.** The Basin Plan water quality objectives for chemical constituents requires that water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in Title 22 of the CCR. The Secondary MCL - Consumer Acceptance Limit for manganese is 50 µg/L. Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are to be applied as an annual average concentration.

The maximum annual average effluent concentration for manganese was 54 µg/L, based on 31 samples collected between 1 November 2005 and 30 April 2008. The maximum annual average upstream receiving water manganese concentration was 22 µg/L, based on two samples collected on 2 May 2007 and 2 January 2008. The maximum annual average receiving water and effluent concentrations were used in the RPA for evaluating the secondary MCL based on input from the DPH and the fact that MCLs are designed to protect human health over long exposure periods. Due to the low levels of

manganese in the receiving water and the consideration of a minimum required dilution of 20:1, the effluent does not exhibit reasonable potential to exceed the Secondary MCL for manganese.

q. **Methylene blue active substances (MBAS).** The Basin Plan water quality objectives for chemical constituents requires that water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in Title 22 of the CCR. The Secondary MCL - Consumer Acceptance Limit for MBAS is 500 µg/L. Based on input from DPH and the fact that secondary MCLs are designed to protect consumer acceptance, effluent limitations based on secondary MCLs are to be applied as an annual average concentration.

   The maximum annual average effluent concentration for MBAS was 1,768 µg/L, based on 31 samples collected between 1 November 2005 and 30 April 2008. The maximum annual average upstream receiving water MBAS concentration was 19 µg/L, based on two samples collected on 2 May 2007 and 2 January 2008. The maximum annual average receiving water and effluent concentrations were used in the RPA for evaluating the secondary MCL based on input from the DPH and the fact that MCLs are designed to protect human health over long exposure periods. Due to the low levels of MBAS in the receiving water and consideration of a minimum required dilution of 20:1, the effluent does not exhibit reasonable potential to exceed the Secondary MCL for MBAS.

r. **Pathogens.** Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the receiving stream. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Regional Water Board dated 8 April 1999, the California Department of Public Health (DPH; formerly the Department of Health Services) indicated that DPH would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any 30 day period. Furthermore, the DHS provided a letter dated 1 July 2003 that included clarification of the recommendations. The letter states, "*A filtered and disinfected effluent should be required in situations where critical beneficial uses (i.e. food crop irrigation or body contact recreation) are made of the receiving waters unless a 20:1 dilution ration (DR) is available. In these circumstances, a secondary, 23 MPN discharge is acceptable.*" This Order is consistent with these recommendations, considering site-specific factors.

   The coliform effluent limitations are adequately protective of the water contact recreation and agricultural irrigation supply beneficial uses of the receiving water in the vicinity of the discharge. In addition, for MUN-designated water bodies,

DPH has not recommended treatment beyond secondary with 20:1 dilution, or tertiary without 20:1 dilution, where there were no known users of untreated water near a treatment plant outfall. Based on a review of the State Water Boards eWRIMS water rights database, there is no evidence of the untreated domestic use of the raw water in the vicinity of the discharge. Therefore, the coliform effluent limitations are also adequately protective of the MUN use.

Consistent with the requirements of Order No. R5-2003-0151, this Order contains a prohibition of discharges to the North Fork Calaveras River that do not receive 20:1 dilution. Effluent limitations for total coliform organisms have been revised from Order No. R5-2003-0151 based on DPH recommendations (i.e. are more stringent).

The Discharger has requested the ability to discharge when 20:1 dilution is not available; however this request has not be authorized until the Discharger upgrades the Facility to provide tertiary treatment. Upon upgrades to the Facility, this Order may be reopened to allow discharges to the North Fork Calaveras River when 20:1 dilution is not available and to require tertiary treatment requirements, which consist of additional restrictions on total coliform organisms and turbidity.

s. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "*...pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*" Effluent Limitations for pH are included in this Order based on the Basin Plan objectives for pH.

t. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, sulfate, and chloride.

Table F-5. Salinity Water Quality Criteria/Objectives

Parameter	Agricultural WQ Goal[1]	Secondary MCL[3]	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies[2]	900, 1600, 2200	469	1,363
TDS (mg/L)	Varies	500, 1000, 1500	455	480
Sulfate (mg/L)	Varies	250, 500, 600	58	73
Chloride (mg/L)	Varies	250, 500, 600	54	59

1 Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)

2 The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors. An EC level of 700 umhos/cm is generally considered to present no risk of salinity impacts to crops. However, many crops are grown successfully with higher salinities.

3 The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

i. **Chloride**. The secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

Chloride concentrations in the effluent ranged from 49 mg/L to 59 mg/L, with an average of 54 mg/L, for two samples collected by the Discharger on 2 May 2007 and 2 January 2008. Background concentrations in the North Fork Calaveras River ranged from 6.6 mg/L to 16 mg/L, with an average of 11.3 mg/L, for two samples collected by the Discharger on 2 May 2007 and 2 January 2008. Neither the effluent or receiving water concentrations exceed the agricultural water quality goal of 106 mg/L.

ii. **Electrical Conductivity (EC)**. The secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700 µmhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are

potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

A review of the Discharger's monitoring reports from 1 November 2005 through 30 April 2008 shows an average effluent EC of 469 µmhos/cm, with a range from 104 µmhos/cm to 1,363 µmhos/cm for 450 samples. The background receiving water EC averaged 275 µmhos/cm in two sampling events collected by the Discharger on 2 May 2007 and 2 January 2008. Due to the low levels of EC in the receiving water, the consideration of a minimum required dilution of 20:1, and the relatively average low levels of EC, the effluent does not exhibit reasonable potential to exceed the agricultural water quality goal of 700 µmhos/cm.

iii. **Sulfate**. The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 42 mg/L to 73 mg/L, with an average of 58 mg/L, for two samples collected by the Discharger on 2 May 2007 and 2 January 2008. Background concentrations in the North Fork Calaveras River ranged from 12 mg/L to 30 mg/L, with an average of 21 mg/L, for two samples collected by the Discharger on 2 May 2007 and 2 January 2008. Neither the effluent or receiving water concentrations exceed the secondary MCL of 250 mg/L.

iv. **Total Dissolved Solids (TDS)**. The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS effluent concentration was 455 mg/L; concentrations ranged from 430 mg/L to 480 mg/L for two samples collected by the Discharger on 2 May 2007 and 2 January 2008. The background receiving water TDS ranged from 150 mg/L to 190 mg/L, with an average of 170 mg/L in two sampling events performed by the Discharger on 2 May 2007 and 2 January 2008. Due to the low levels of TDS in the receiving water and the

consideration of a minimum required dilution of 20:1, the effluent does not exhibit reasonable potential to exceed the agricultural water quality goal of 450 mg/L.

v. **Salinity Effluent Limitations.** Based on the low reported salinity in the effluent, the discharge does not have reasonable potential to cause or contribute to an instream excursion of water quality objectives for salinity. However, since the Discharger discharges to the North Fork Calaveras River and eventually the Sacramento – San Joaquin Delta, of additional concern is the salt contribution to Delta waters. Therefore, this Order requires the Discharger to develop a salinity evaluation and minimization plan to address sources of salinity from the domestic wastewater treatment system and includes an effluent limitation for electrical conductivity of the municipal water supply electrical conductivity plus an increment of 500 µmhos/cm, not to exceed 700 µmhos/cm.

u. **Settleable Solids.** For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*" Order No. R5-2003-0151 included numeric monthly average and daily maximum effluent limitations of 0.1 ml/L and 0.2 ml/L, respectively. Settleable solids was detected in the effluent at 0.10 ml/L on 2 January 2008, 0.20 ml/L on 16 April 2008, and 1.2 ml/L on 30 April 2008, based on 61 samples collected between 1 November 2005 and 30 April 2008. The 30 April 2008 sample of 1.2 ml/L exceeded the daily maximum effluent limitation of 0.2 ml/L and the monthly average for settleable solids in April 2008 of 0.3 ml/L exceeded the monthly average effluent limitation of 0.1 ml/L. Because the Facility provides only secondary treatment and effluent data indicates exceedances of the effluent limitations for settleable solids contained in Order No. R5-2003-0151, effluent limitations for settleable solids have been retained in this Order.

   Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order. A daily maximum effluent limitation for settleable solids is included in the Order, in lieu of a weekly average, to ensure that the treatment works operate in accordance with design capabilities.

v. **Toxicity.** See Section IV.C.5. of the Fact Sheet regarding whole effluent toxicity.

w. **Zinc.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. The criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria. Using the worst-case measured hardness from the effluent as described in section IV.C.2.b (59 mg/L as $CaCO_3$) and the USEPA recommended dissolved-to-total translator, the applicable chronic criterion (maximum 4-day average concentration) and the applicable acute criterion (maximum 1-hour average

concentration) are both 77 µg/L, as total recoverable.

The MEC for total zinc was 160 µg/L, based on 31 samples collected between 1 November 2005 and 30 April 2008, while the maximum observed upstream receiving water total zinc concentration was 2 µg/L, based on two samples collected on 2 May 2007 and 2 January 2008. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for zinc. As discussed in section IV.C.2.c, dilution credits for calculation of effluent limitations based on aquatic life are not being granted. An AMEL and MDEL for total zinc of 48 µg/L and 77 µg/L, respectively, are included in this Order based on CTR criteria for the protection of freshwater aquatic life (see Attachment F, Table F-13 for WQBEL calculations).

Based on the sample results for the effluent, the limitations appear to put the Discharger in immediate non-compliance. A time schedule for compliance with the zinc final effluent limitations is established in Time Schedule Order (TSO) No. **R5-2009-0008** in accordance with CWC sections 13300 and 13385. Order No. **R5-2009-0008** also requires preparation and implementation of a pollution prevention plan in compliance with CWC section 13263.3.

4. WQBEL Calculations

a. As discussed in Section IV.C.3 above, the effluent limitation based on the secondary MCL was applied as an annual average for iron based on input from DPH. Effluent limitations for chlordane, chlorine residual, pH, and settleable solids were based on Basin Plan objectives and applied directly as effluent limitations. Effluent limitations for total coliform organisms were based on DPH's recommendations and Order No. R5-2003-0151. The final effluent limitation for electrical conductivity is based on BPTC.

b. Effluent limitations for ammonia, bis (2-ethylhexyl) phthalate, copper, cyanide, diazinon, dichlorobromomethane, zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations for these parameters.

c. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$$ECA_{HH} = HH + D(HH - B)$$

where:

ECA_{acute} = effluent concentration allowance for acute (1-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (4-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (1-hour average)

CCC = criteria continuous concentration (4-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\underbrace{M_A ECA_{acute}}_{LTA_{acute}}, M_C ECA_{chronic}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

WQBELs were calculated for ammonia, bis (2-ethylhexyl) phthalate, copper, cyanide, diazinon, dichlorobromomethane, iron, and zinc as follows in Tables F-6 through F-13, below.

Table F-6. WQBEL Calculations for Ammonia

	Acute	4-Day Chronic	30-Day Chronic
Criteria (mg/L)[1]	2.14	10.9	4.34
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA[2]	2.14	10.9	4.34
ECA Multiplier[3]	0.39	0.6	0.82
LTA	0.83[4]	6.51[4]	3.56[5]
AMEL Multiplier (95th%)[6]	1.43	[8]	[8]
AMEL (mg/L)	**1.2**	[8]	[8]
MDEL Multiplier (99th%)[7]	2.56	[8]	[8]
MDEL (mg/L)	**2.1**	[8]	[8]

1 USEPA Ambient Water Quality Criteria.
2 ECA calculated per section 1.4.B, Step 2 of SIP.
3 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
4 Assumes sampling frequency n<=4.
5 Assumes sampling frequency n=30.
6 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
7 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
8 Limitations based on acute LTA ($LTA_{acute} < LTA_{30\text{-day chronic}} < LTA_{4\text{-day chronic}}$).

Table F-7. WQBEL Calculations for Bis (2-Ethylhexyl) Phthalate

	Human Health
Criteria (µg/L)	1.80
Background concentration (µg/L)	0.1[1]
Dilution Credit	20:1
ECA	25
AMEL (µg/L)[2]	**25**
MDEL/AMEL Multiplier[3]	2.78
MDEL (µg/L)	**68**

1 All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL from the 2 January 2008 sample analyzed by CRG Marine Laboratories.
2 AMEL = ECA per section 1.4.B, Step 6 of SIP
3 Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-8. WQBEL Calculations for Copper

	Acute	Chronic
Criteria, total recoverable (µg/L)[1]	8.5	5.9
Dilution Credit	No Dilution	No Dilution
ECA, total recoverable[2]	8.5	5.9
ECA Multiplier[3]	0.56	0.74
LTA	4.73	4.37
AMEL Multiplier (95th%)[4,5]	[7]	1.24
AMEL (µg/L)	[7]	**5.4**
MDEL Multiplier (99th%)[6]	[7]	1.80
MDEL (µg/L)	[7]	**7.9**

1 CTR aquatic life criteria, based on a hardness of 59 mg/L as $CaCO_3$.
2 ECA calculated per section 1.4.B, Step 2 of SIP.
3 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
4 Assumes sampling frequency n<=4.
5 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
6 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
7 Limitations based on chronic LTA (Chronic LTA < Acute LTA).

Table F-9. WQBEL Calculations for Cyanide

	Acute	Chronic
Criteria (µg/L)	22	5.2
Dilution Credit	No Dilution	No Dilution
ECA[1]	22	5.2
ECA Multiplier[2]	0.32	0.53
LTA	7.06	2.74
AMEL Multiplier (95th%)[3,4]	[6]	1.55
AMEL (µg/L)	[6]	**4.3**
MDEL Multiplier (99th%)[5]	[6]	3.11
MDEL (µg/L)	[6]	**8.5**

1 ECA calculated per section 1.4.B, Step 2 of SIP.
2 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
3 Assumes sampling frequency n<=4.
4 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
5 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
6 Limitations based on chronic LTA (Chronic LTA < Acute LTA).

Table F-10. WQBEL Calculations for Diazinon

	Acute	Chronic
Criteria (µg/L)[1]	0.08	0.05
Dilution Credit	No Dilution	No Dilution
ECA[2]	0.08	0.05
ECA Multiplier[3]	0.11	0.18
LTA	0.01	0.01
AMEL Multiplier (95th%)[4,5]	[7]	2.96
AMEL (µg/L)	[7]	**0.03**
MDEL Multiplier (99th%)[6]	[7]	9.32
MDEL (µg/L)	[7]	**0.08**

1 DFG aquatic life criteria.
2 ECA calculated per section 1.4.B, Step 2 of SIP.
3 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
4 Assumes sampling frequency n<=4.
5 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
6 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
7 Limitations based on chronic LTA (Chronic LTA < Acute LTA).

Table F-11. WQBEL Calculations for Dichlorobromomethane

	Human Health
Criteria (µg/L)	0.56
Background Concentration (µg/L)	0.08[1]
Dilution Credit	20:1
ECA	9.68
AMEL (µg/L)[2]	**9.7**
MDEL/ AMEL Multiplier[3]	2.28
MDEL (µg/L)	**22**

1 All receiving water concentrations were reported as non-detect. This value represents the lowest reported MDL.
2 AMEL = ECA per section 1.4.B, Step 6 of SIP
3 Assumes sampling frequency n<=4. Uses MDEL/AMEL multiplier from Table 2 of SIP.

Table F-12. WQBEL Calculations for Iron

	Human Health
Criteria (µg/L)[1]	300
Background Concentration (µg/L)	448[2]
Dilution Credit	No Dilution
ECA (µg/L)	300
Annual Average Effluent Limitation (µg/L)	**300**

1 Based on California Secondary Maximum Contaminant Level.
2 This value represents the maximum annual average receiving water concentration.

Table F-13. WQBEL Calculations for Zinc

	Acute	Chronic
Criteria, total recoverable (µg/L)[1]	77	77
Dilution Credit	No Dilution	No Dilution
ECA, total recoverable[2]	77	77
ECA Multiplier[3]	0.48	0.68
LTA	37	52
AMEL Multiplier (95th%)[4,5]	1.31	[7]
AMEL (µg/L)	48	[7]
MDEL Multiplier (99th%)[6]	2.09	[7]
MDEL (µg/L)	77	[7]

1 CTR aquatic life criteria, based on a hardness of 59 mg/L as $CaCO_3$.
2 ECA calculated per section 1.4.B, Step 2 of SIP.
3 Acute and Chronic ECA Multiplier calculated at 99th percentile per section 1.4.B, Step 3 of SIP or per sections 5.4.1 and 5.5.4 of the TSD.
4 Assumes sampling frequency n<=4.
5 The probability basis for AMEL is 95th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
7 The probability basis for MDEL is 99th percentile per section 1.4.B, Step 5 of SIP or section 5.5.4 of the TSD.
8 Limitations based on acute LTA (Acute LTA < Chronic LTA).

Summary of Water Quality-based Effluent Limitations Discharge Point No. 001

Table F-14. Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
pH	standard units	--	--	--	6.5	8.5
Priority Pollutants						
Bis (2-ethylhexyl) phthalate	µg/L	34	--	95	--	--
Chlordane	µg/L	--	--	--	--	ND
Copper, Total Recoverable	µg/L	5.4	--	7.9	--	--
Cyanide, Total (as CN)	µg/L	4.3	--	8.5	--	--
Dichlorobromomethane	µg/L	9.7	--	22	--	--
Zinc, Total Recoverable	µg/L	48	--	77	--	--
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	µg/L	1.2	--	2.1	--	--
	lbs/day[1]	15	--	26	--	--
Chlorine, Total Residual	mg/L	--	0.011[2]	0.019[3]	--	--
Diazinon	µg/L	0.03	--	0.08	--	--
	lbs/day[1]	0.0004	--	0.001	--	--

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Electrical Conductivity @ 25°C	µmhos/cm	[4]	--	--	--	--
Iron, Total Recoverable	µg/L	300[5]	--	--	--	--
Settleable Solids	ml/L	0.1	--	0.2	--	--
Total Coliform Organisms	MPN/100 mL	--	23[6]	240[7]	--	--

1 Based on permitted flow of 1.5 MGD.
2 Applied as a 4-day average effluent limitation.
3 Applied as a 1-hour average effluent limitation.
4 The annual average effluent electrical conductivity shall not exceed the municipal water supply electrical conductivity plus an increment of 500 µmhos/cm, or 700 µmhos/cm, whichever is less.
5 Applied as an annual average effluent limitation.
6 Applied as a 7-day median effluent limitation.
7 Effluent total coliform organisms are not to exceed 240 MPN/100 mL more than once in any 30-day period.

5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00) The Basin Plan also states that, "*...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...*". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Accordingly, effluent limitations for acute toxicity have been included in this Order as follows:

Acute Toxicity. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay-- ---------- 70%
Median for any three or more consecutive bioassays --------- 90%

b. **Chronic Aquatic Toxicity.** The Discharger performed three annual whole effluent chronic toxicity tests with five different test endpoints for a total of 15 bioassay results for the period 1 November 2005 through 31 April 2008. Of those chronic toxicity test results, the following table summarizes the bioassay results when the endpoint was greater than 1 chronic toxicity unit (TUc).

Table F-15. Summary of Chronic Aquatic Toxicity Results

Date	Species	Test Endpoint	Result (TUc)
7 March 2006	*Pimephales promelas*	Growth	2
6 March 2007	*Pimephales promelas*	Growth	2

Based on whole effluent chronic toxicity testing performed by the Discharger from 1 November 2005 through 31 April 2008, the discharge could cause or contribute to an in-stream excursion above of the Basin Plan's narrative toxicity objective in North Fork Calaveras River. As discussed in section IV.C.2.c, dilution credits for calculation of the numeric trigger based on aquatic life are not being granted.

A narrative effluent limit is included in this Order that requires that there shall be no chronic toxicity in the effluent discharge.

To ensure compliance with the Basin Plan's narrative toxicity objective and the narrative toxicity limitation contained in this Order, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). Furthermore, Special Provisions VI.C.2.a of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates a pattern of toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE), in accordance with an approved TRE work plan. The numeric toxicity monitoring trigger is not an effluent limitation, it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as the threshold to initiate a TRE if a pattern of effluent toxicity has been demonstrated.

D. Final Effluent Limitations

1. Mass-based Effluent Limitations

Title 40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in

terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations are established for ammonia, BOD_5, and TSS, which are oxygen-demanding substances, and diazinon, which is bioaccumulative. The Facility was designed to treat a peak flow capacity of 0.9 MGD. The Discharger also has three effluent polishing ponds that allow the Discharger to store treated effluent until receiving water levels permit, resulting in a hydraulic capacity of 1.5 MGD for the Facility. Because this Order authorizes discharges during the wet-weather season (1 November through 30 April), mass-based effluent limitations were calculated based upon the permitted flow of 1.5 MGD, which reflects the hydraulic capacity of the Facility. For those pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based, mass-based effluent limitations are not included in this Order.

2. Averaging Periods for Effluent Limitations

Title 40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, the USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. "*First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed.*" (TSD, pg. 96) This Order utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia, bis (2-ethylhexyl) phthalate, copper, cyanide, diazinon, dichlorobromomethane, settleable solids, and zinc as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Based on a conversation between the Regional Water Board and the California DPH, annual average limitations are more appropriate for some pollutants whose effluent limitations are based on primary and secondary MCLs. Therefore, an annual average limitation has been applied for iron. Furthermore, for BOD_5, TSS, chlordane, chlorine residual, pH, and total coliform organisms, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in Attachment F, Section IV.C.3, above.

3. Satisfaction of Anti-Backsliding Requirements

Some effluent limitations in this Order are less stringent that those in the previous Order. As discussed below this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

Order No. R5-2003-0151 established effluent limitations for aluminum based on the National Ambient Water Quality Criteria for protection of freshwater aquatic life to interpret the Basin Plan's narrative toxicity objective. However, upon evaluation of site-specific conditions in the North Fork Calaveras River, the Regional Water Board has determined that the chronic aquatic life criterion for aluminum is not applicable in the North Fork Calaveras River. 40 CFR 122.44(l)(2)(i)(B)(2) allows for less stringent limitations in a permit if the administrator determines that technical mistakes or mistaken interpretations of the law were made in issuing a permit. Based on available site-specific information that indicates that the application of the chronic aquatic life criterion for the discharge to the North Fork Calaveras is not an applicable interpretation of the Basin Plan's narrative toxicity objective, relaxation of effluent limitations is allowed under 40 CFR 122.44(l)(2)(i)(B)(2). In the absence of an applicable chronic aquatic life criterion, the most stringent water quality criterion is the Secondary MCL for aluminum. As discussed further in section IV.C.3, the discharge no longer exhibits reasonable potential to exceed water quality objectives for aluminum. Therefore, effluent limitations are not included in this Order.

Order No. R5-2003-0151 established final mass-based effluent limitations for chlorine residual, copper, and zinc. 40 CFR 122.45(f)(1)(ii) states that mass limitations are not required when applicable standards and limitations are expressed in terms of other units of measurement. The numerical effluent limitations for chlorine residual, copper, and zinc established in this Order are based on water quality standards and objectives, which are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations. Although the mass limitations for chlorine residual, copper, and zinc have been removed, this does not constitute backsliding, because; (1) this Order includes equivalent or more stringent concentration-based effluent limitations for these constituents, and (2) the flow has not increased, which is the basis for calculating mass-based effluent limitations. Compliance with the concentration-based limits will ensure that significantly less mass of the pollutants is discharged to the receiving water.

The removal of effluent limitations for aluminum and mass-based limitations for chlorine residual, copper, and zinc is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Any impact on existing water quality will be insignificant.

4. Satisfaction of Antidegradation Policy

a. **Surface Water.** This Order does not authorize an increase in discharge flow. The permitted discharge is consistent with the antidegradation provisions of 40 CFR

131.12 and State Water Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

The Discharger requested in the ROWD the authorization to increase the discharge flow from 1.5 MGD to 1.9 MGD, authorization to discharge when effluent receives 10:1 dilution, and an extension of the surface water discharge season. In order for the Regional Water Board to authorize these changes, the Discharger must submit a complete antidegradation analysis. Upon upgrades to the Facility and submission of an approved Dilution/Mixing Zone Study, an evaluation demonstrating that utilization of additional land disposal does not mitigate the need for extension of the surface water discharge season, and a complete antidegradation analysis, this Order may be reopened to revise the discharge prohibitions to allow discharges that do not receive 20:1 dilution and include tertiary treatment requirements consistent with DPH recommendations, include effluent limitations based on an appropriate dilution factor for the protection of aquatic life, and/or to extend the permitted period of surface water discharge.

b. **Groundwater.** As discussed in section II.A of this Fact Sheet, the Discharger previously purchased the Nielson Property for the purpose of additional effluent storage and disposal. In the Discharger's December 2007 Initial Study/Mitigated Negative Declaration, the Discharger proposed the installation of three new storage ponds, installation of a spray irrigation system and an emergency run-off ditch berm system for water collection, and the installation of several groundwater monitoring wells. Domestic wastewater contains constituents such as TDS, EC, pathogens, nitrates, organics, metals and oxygen demanding substances (BOD). Percolation from the proposed facilities may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

   i. the degradation is limited in extent;

   ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;

   iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and

iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

Upon upgrades to the Facility and submission of a complete antidegradation analysis satisfying the requirements of Resolution 68-16, this Order may be reopened to allow for discharges to additional effluent disposal and storage facilities on the Nielson Property.

Summary of Final Effluent Limitations
Discharge Point No. 001

Table F-16. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Conventional Pollutants							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	30	45	60	--	--	CFR
	lbs/day[2]	375	563	751	--	--	
	% Removal	85	--	--	--	--	
pH	standard units	--	--	--	6.5	8.5	BP
Total Suspended Solids	mg/L	30	45	60	--	--	CFR
	lbs/day[2]	375	563	751	--	--	
	% Removal	85	--	--	--	--	
Priority Pollutants							
Bis (2-ethylhexyl) phthalate	µg/L	34	--	95	--	--	CTR
Chlordane	µg/L	--	--	--	--	ND	BP
Copper, Total Recoverable	µg/L	5.4	--	7.9	--	--	CTR
Cyanide, Total (as CN)	µg/L	4.3	--	8.5	--	--	CTR
Dichlorobromomethane	µg/L	9.7	--	22	--	--	CTR
Zinc, Total Recoverable	µg/L	48	--	77	--	--	CTR
Non-Conventional Pollutants							
Acute Toxicity	% Survival	[3]	--	--	--	--	BP
Ammonia Nitrogen, Total (as N)	mg/L	1.2	--	2.1	--	--	NAWQC
	lbs/day[2]	15	--	26	--	--	
Chlorine, Total Residual	mg/L	--	0.011[4]	0.019[5]	--	--	NAWQC
Chronic Toxicity	TUc	[6]	--	--	--	--	BP
Diazinon	µg/L	0.03	--	0.08	--	--	DFG
	lbs/day[2]	0.0004	--	0.001	--	--	
Electrical Conductivity @ 25°C	µmhos/cm	600[7]	--	--	--	--	PB
Iron, Total Recoverable	µg/L	300[8]	--	--	--	--	MCL
Settleable Solids	ml/L	0.1	--	0.2	--	--	BP

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Total Coliform Organisms	MPN/100 mL	--	23[9]	240[10]	--	--	DPH

1 CFR – Based on secondary treatment standards contained in 40 CFR Part 133.
BP – Based on water quality objectives contained in the Basin Plan.
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.
DFG – Based on Department of Fish and Game water quality criteria for the protection of freshwater aquatic life.
PB – Based on treatment plant performance.
MCL – Based on the Secondary Maximum Contaminant Level.
DPH – Based on recommendations from the Department of Public Health for discharges which receive 20:1 dilution.

2 Based on a permitted flow of 1.5 MGD.

3 Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
Minimum for any one bioassay ---------- 70%
Median for any three or more consecutive bioassays ---------- 90%

4 Applied as a 4-day average effluent limitation.

5 Applied as a 1-hour average effluent limitation.

6 There shall be no chronic toxicity in the effluent discharge.

7 The annual average effluent electrical conductivity shall not exceed the municipal water supply electrical conductivity plus an increment of 500 µmhos/cm, or 700 µmhos/cm, whichever is less.

8 Applied as an annual average effluent limitation.

9 Applied as a 7-day median effluent limitation.

10 Effluent total coliform organisms are not to exceed 240 MPN/100 mL more than once in any 30-day period.

E. Interim Effluent Limitations

1. **Ammonia and Diazinon.** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order.

   The interim limitations for ammonia and diazinon in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

   When there are less than 10 sampling data points available, the *Technical Support Document for Water Quality-based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of

wastewater effluent sampling. The TSD recognizes that a minimum of 10 data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than 10 sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

The Regional Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

Table F-20 summarizes the calculations of the interim effluent limitations for ammonia and diazinon:

Table F-17. Interim Effluent Limitation Calculation Summary

Parameter	Units	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Ammonia Nitrogen	mg/L	14	6.2	3.6	107	18
Diazinon	µg/L	2.5	0.4	0.7	15	2.8

F. Land Discharge Specifications

The land discharge specifications for BOD_5, settleable solids, and total coliform organisms are necessary to protect the beneficial uses of the groundwater and have been retained from Order No. R5-2003-0151 for discharges to the DLDA.

G. Reclamation Specifications

The Discharger does not currently reclaim wastewater; however this Order requires that any reclaimed wastewater shall meet the criteria contained in Title 22, Division 4, California Code of Regulations (CCR), Section 60301, et seq, should the Discharger provide for reclamation in the future.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations

that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

A. Surface Water

CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "*[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment, settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

B. Groundwater

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 mL. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.

3. Order No. R5-2003-0151 contained groundwater limitations due to the potential of discharges to the DLDA to result in an increase in concentrations of pollutants in groundwater. Results of quarterly groundwater monitoring indicate periodic increases above background concentrations and the agricultural water goal of 450 mg/L for total dissolved solids at the downstream monitoring location GW-2. Increases were not observed at monitoring location GW-3. Results of monitoring also indicate several increases above background concentrations and the groundwater limitation for total coliform organisms at the downstream monitoring locations GW-2 and GW-3. Therefore, groundwater limitations are being retained from Order No. R5-2003-0151 to protect the beneficial uses of the underlying groundwater.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD_5 and TSS reduction requirements).

2. This Order retains continuous monitoring for flow and weekly monitoring for BOD_5 and TSS of the influent from Order No. R5-2003-0151.

3. Order No. R5-2003-0151 established weekly influent monitoring requirements for electrical conductivity. Monitoring for electrical conductivity is necessary to characterize contributions of salinity to the Facility, however the Regional Water Board finds that quarterly monitoring is sufficient. Therefore, weekly monitoring for electrical conductivity has been reduced to quarterly. Quarterly monitoring requirements have also been established for total dissolved solids to characterize contributions of salinity to the Facility.

4. Influent monitoring for pH, ammonia, aluminum, copper, zinc, bis (2-ethylhexyl) phthalate, iron, manganese, MBAS, and diazinon have not been retained from Order No. R5-2003-0151 as they are not necessary for the evaluation of treatment plant performance.

B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to

assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream.

2. Effluent monitoring requirements for flow, BOD_5, TSS, ammonia, diazinon, electrical conductivity, settleable solids, total coliform organisms, and turbidity have been retained from Order No. R5-2003-0151 to characterize the effluent and determine compliance with applicable effluent limitations.

3. Monitoring data collected over the term of Order No. R5-2003-0151 for chlordane and cyanide indicate reasonable potential to exceed water quality criteria for these pollutants. Therefore, monthly effluent monitoring for chlordane and cyanide has been established in this Order.

4. Order No. R5-2003-0151 required effluent monitoring twice per month for copper, zinc, dichlorobromomethane, bis (2-ethylhexyl) phthalate, and iron. Monitoring data collected over the term of Order No. R5-2003-0151 indicates reasonable potential to exceed water quality criteria for these pollutants. The Regional Water Board staff finds that monthly monitoring is sufficient to characterize levels of these pollutants in the effluent and determine compliance with effluent limitations. Therefore, the monitoring frequency for copper, zinc, dichlorobromomethane, bis (2-ethylhexyl) phthalate, and iron has been reduced to monthly in this Order.

5. Order No. R5-2003-0151 required effluent monitoring twice per month for aluminum, manganese, and MBAS. Monitoring data collected over the term of Order No. R5-2003-0151 did not demonstrate reasonable potential to exceed water quality criteria. Therefore, the monitoring frequency for aluminum, manganese, and MBAS has been reduced to quarterly in this Order.

6. Order No. R5-2003-0151 required effluent monitoring twice per month for hardness to be conducted concurrent with effluent monitoring for metals. The monitoring frequency for metals with effluent limitations (i.e., copper and zinc) has been reduced to monthly. Therefore, the monitoring frequency for hardness has been reduced to monthly in this Order.

7. Electrical conductivity is an indicator parameter for salinity, including total dissolved solids. Establishing effluent limitations for electrical conductivity is expected to effectively limit the constituents that contribute to salinity, including total dissolved solids. Effluent limitations for total dissolved solids were not established in this Order. However, in order to continue to characterize salinity in the effluent, monthly monitoring for total dissolved solids has been established in this Order.

8. Monitoring data collected over the term of Order No. R5-2003-0151 for oil and grease and standard minerals did not demonstrate reasonable potential to exceed water quality criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2003-0151.

9. Order No. R5-2003-0151 found that nitrate plus nitrite in the discharge exhibited reasonable potential to exceed water quality objectives and required monitoring for nitrate plus nitrite twice per month. Monitoring data collected over the term of Order No. R5-2003-0151 for nitrate plus nitrite did not demonstrate reasonable potential to exceed water quality criteria and effluent limitations have not been included in this Order and monitoring requirements have not been retained. However, nitrate and nitrite are generated as part of the wastewater treatment plant operations. Therefore, this Order establishes monthly monitoring requirements for nitrate and nitrite.

10. Order No. R5-2003-0151 specified the sample type (meter) for pH, dissolved oxygen, and temperature. The sample type has been modified to grab and a footnote has been included allowing for a hand-held field meter to be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. Monitoring frequencies for these parameters have been retained from Order No. R5-2003-0151.

11. Order No. R5-2003-0151 required daily grab samples for chlorine residual. The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. Because chlorine is an acutely toxic constituent that can be monitored continuously, average 1-hour and 4-day limitations for chlorine have been included in this Order. Therefore, this Order requires continuous monitoring for chlorine residual using a meter.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Order No. R5-2003-0151 required quarterly acute toxicity testing. Because this Order only authorizes discharges from 1 November through 30 April, quarterly monitoring is not appropriate. Therefore, this Order requires 96-hour bioassay testing twice per surface water discharge season (1 November through 30 April) to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Receiving Water Monitoring

1. Surface Water

a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

b. Order No. R5-2003-0151 established four receiving water monitoring stations: R-1, 100 feet upstream from the point of discharge in San Andreas Creek; R-2, 500 feet downstream from the point of discharge in San Andreas Creek; R-3, 100 feet upstream from the point of discharge in the Calaveras River; and R-4, downstream from the point of discharge in the Calaveras River, at defined edge of mixing zone. The Discharger has discontinued discharges to San Andreas

Creek. Therefore, monitoring requirements for R-1 and R-2 have been discontinued. As discussed in Section IV.C.2 above, a human health mixing zone has been allowed, the boundary of which is 250 feet downstream from the discharge point. Therefore, the downstream monitoring location is defined as 250 feet downstream of the point of discharge to the North Fork Calaveras Creek. Monitoring location names have been revised from R-3 and R-4 to RSW-001 and RSW-002, respectively, to be consistent with Regional Water Board naming conventions.

c. Receiving water monitoring requirements for flow, dilution factor, pH, ammonia, dissolved oxygen, electrical conductivity, fecal coliform organisms, temperature, and turbidity have been retained from Order No. R5-2003-0151.

d. Order No. R5-2003-0151 required monthly receiving water monitoring for bis (2-ethylhexyl) phthalate, copper, dichlorobromomethane, zinc, aluminum, diazinon, iron, manganese, MBAS, and nitrate plus nitrite. This Order requires the Discharger to perform an Effluent and Receiving Water Characterization Study which will require monitoring for these constituents during the permit term to provide the necessary information for the next permit renewal. Thus, specific monitoring requirements for these pollutants have not been retained in this Order.

e. Order No. R5-2003-0151 required receiving water monitoring twice per month for hardness to be conducted concurrent with monitoring for metals. The effluent monitoring frequency for metals with effluent limitations (i.e., copper and zinc) has been reduced to monthly. Therefore, the monitoring frequency for hardness has been reduced to monthly in this Order.

2. Groundwater

a. Section 13267 of the California Water Code states, in part, *"(a) A Regional Water Board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region"* and *"(b) (1) In conducting an investigation…, the Regional Water Board may require that any person who… discharges… waste…that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."* In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program (Attachment E) is issued pursuant to California Water Code Section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the Facility subject to this Order.

b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents that may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. This Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution No. 68-16 and the Basin Plan.

c. Results of quarterly groundwater monitoring collected during Order No. R5-2003-0151 indicate periodic increases above background concentrations and the agricultural water goal of 450 mg/L for total dissolved solids at the downstream monitoring location GW-2. Increases were not observed at monitoring location GW-3. Results of monitoring also indicate several increases above background concentrations and the groundwater limitation for total coliform organisms at the downstream monitoring locations GW-2 and GW-3. Groundwater monitoring data did not show an increase of any other constituents in groundwater in monitoring wells downstream of the DLDA. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to continue evaluating impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

d. Quarterly monitoring of groundwater elevation, electrical conductivity, and pH and semi-annual monitoring of total dissolved solids, total coliform organisms, and nitrate has been retained from Order No. R5-2003-0151.

e. Order No. R5-2003-0151 required monitoring for standard minerals every other year. This Order requires standard minerals to be monitored once during the third year of the permit term.

E. Other Monitoring Requirements

1. Biosolids Monitoring

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.6.a.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

2. Water Supply Monitoring

a. The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Regional Water Board is limiting effluent salinity of municipal wastewater treatment plants to an increment of 500 µmhos/cm over the electrical conductivity of the municipal water supply as representing BPTC. This Order requires the Discharger to monitor quarterly for electrical conductivity and total dissolved solids in the municipal water supply to continue to characterize contributions of salinity to the Facility.

b. Annual monitoring for standard minerals has been retained from Order No. R5-2003-0151.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The Discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

a. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a Toxicity Reduction Evaluation (TRE). This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.

b. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for inorganic constituents. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

c. **Dilution/Mixing Zone Study.** As described in section IV.C.2.c of this Fact Sheet, the Discharger submitted an inadequate Dilution/Mixing Zone Study and effluent limitations based on criteria for the protection of aquatic life have been established without consideration of dilution credits. Should the Discharger submit an approved Dilution/Mixing Zone Study that meets the requirements of Section 1.4.2.2 of the SIP, including defining the boundaries of the acute and chronic mixing zones, the Regional Water Board may reopen this Order to include effluent limitations based on an appropriate dilution factor for the protection of aquatic life.

d. **Extension of Surface Water Discharge Season.** The Discharger requested in the ROWD to extend the permitted period of surface water discharge from 1 November through 30 April to 16 October through 31 May due to limited land disposal facilities and recent early autumn and/or late spring rainfall. However, the ROWD also indicates that the Discharger is planning the development of additional effluent storage and disposal facilities on the Nielson Property. In order to authorize an extension of the surface water discharge season, the Discharger must submit a report evaluating the use of the additional land disposal area as an alternative to extension of the surface water discharge season. Should the Discharger submit an evaluation demonstrating that utilizing the additional land disposal does not mitigate the need for extension of the surface water discharge season, this Order may be reopened to extend the permitted period of surface water discharge.

e. **Flow Ratio Prohibition.** This Order includes a prohibition of discharges of secondary treated wastewater to the North Fork Calaveras River which do not

receive a minimum of 20:1 dilution as a daily average. Flow monitoring indicates that, at times, the discharge to the North Fork Calaveras River may not receive 20:1 dilution. The Discharger has proposed to construct upgrades to the Facility to provide tertiary treatment to adequately protect beneficial uses for discharges that do not achieve 20:1 dilution. Upon upgrades to the Facility to provide tertiary treatment, this Order may be reopened to revise the discharge prohibition to allow discharges that do not receive 20:1 dilution and include tertiary treatment requirements consistent with DPH recommendations.

2. Special Studies and Additional Monitoring Requirements

a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00.) Based on annual whole effluent chronic toxicity testing performed by the Discharger from 1 November 2005 through 30 April 2008, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective.

This provision requires the Discharger to develop a Toxicity Reduction Evaluation (TRE) Work Plan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if a pattern of toxicity has been demonstrated.

Monitoring Trigger. A numeric toxicity monitoring trigger of > 1 TUc (where TUc = 100/NOEC) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

Accelerated Monitoring. The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is a pattern of toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests every 2 weeks using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991* (TSD). The TSD at page 118 states, "EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required." Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the

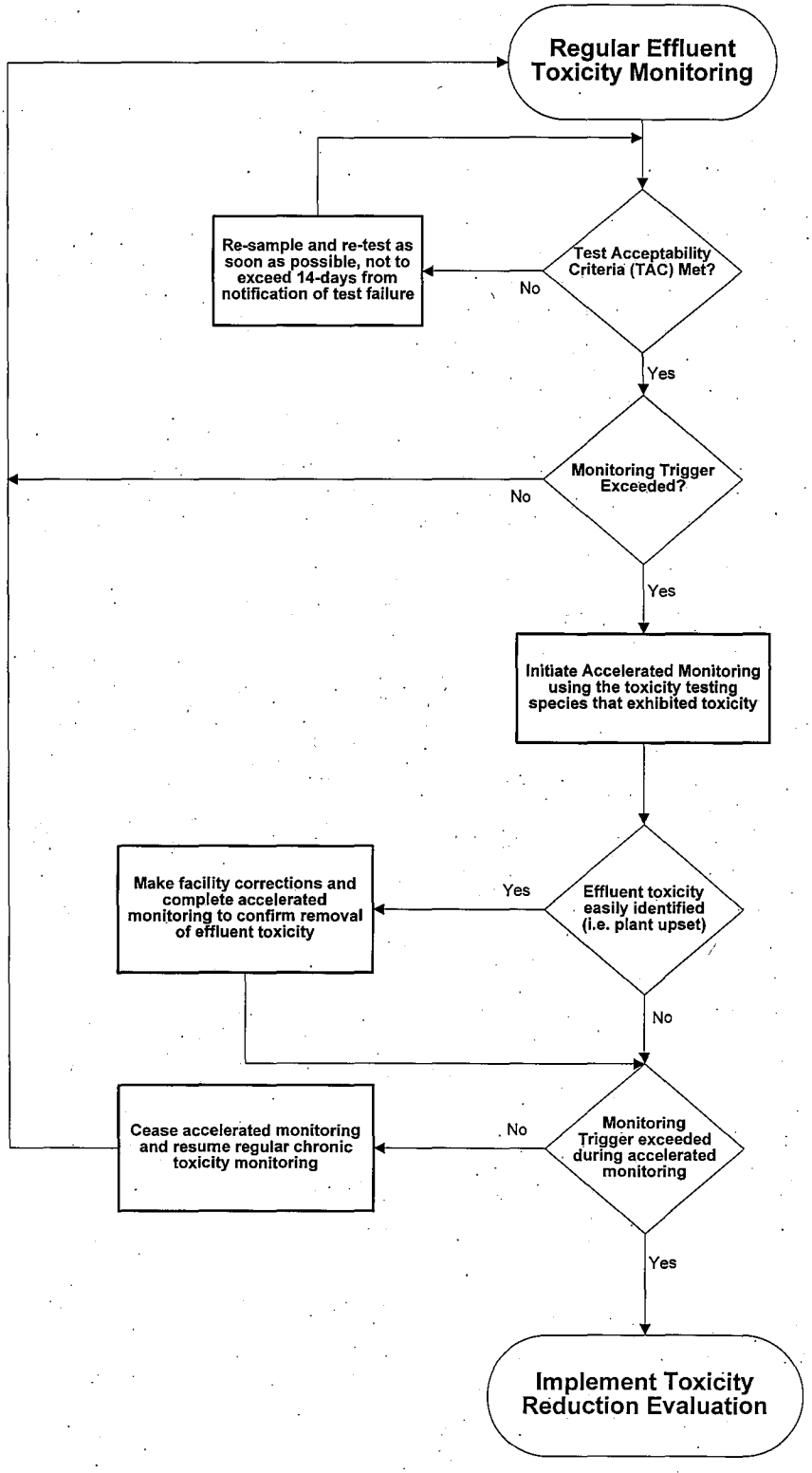
four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of a pattern of effluent toxicity (i.e. toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

TRE Guidance. The Discharger is required to prepare a TRE Work Plan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants,* EPA/833B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial TREs, EPA/600/2-88/070, April 1989.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures,* Second Edition, EPA 600/6-91/005F, February 1991.
- *Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I*, EPA 600/6-91/005F, May 1992.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting acute and Chronic Toxicity,* Second Edition, EPA 600/R-92/080, September 1993.
- *Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity*, Second Edition, EPA 600/R-92/081, September 1993.
- *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, EPA-821-R-02-012, October 2002.
- *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*, Fourth Edition, EPA-821-R-02-013, October 2002.
- *Technical Support Document for Water Quality-based Toxics Control,* EPA/505/2-90-001, March 1991.

Figure F-1
WET Accelerated Monitoring Flow Chart



b. **Groundwater Monitoring.** To determine compliance with Groundwater Limitations V.B., the Discharger is required to evaluate the adequacy of its groundwater monitoring network for the existing developed portions of the DLDA. This provision requires the Discharger to evaluate its groundwater monitoring network to ensure there are one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater.

c. **BPTC Evaluation Tasks.** Results of quarterly groundwater monitoring indicate periodic increases above background concentrations and the agricultural water goal of 450 mg/L for total dissolved solids at the downstream monitoring location GW-2. Increases were not observed at monitoring location GW-3. Results of monitoring also indicate several increases above background concentrations and the groundwater limitation for total coliform organisms at the downstream monitoring locations GW-2 and GW-3. Therefore, this Order requires the Discharger to submit a technical report describing the groundwater results for total coliform organisms and critiquing each evaluated component of the Facility with respect to BPTC and minimizing the discharge's impact on groundwater quality.

d. **Alternative Disposal Options.** The State Water Board adopted a State Policy for Water Quality Control on 6 July 1972 in which the State Water Board found that protection of the State's waters required implementation programs that conformed to specific principles. The State Policy for Water Quality Control included the following principles that relate to reclaimed water and consolidation of wastewater collection and treatment systems.

   i. Municipal, agricultural, and industrial wastewaters must be considered as a potential integral part of the total available fresh water resource.

   ii. Coordinated management of water supplies and wastewaters on a regional basis must be promoted to achieve efficient utilization of water.

   iii. Wastewater collection and treatment facilities must be consolidated in all cases where feasible and desirable to implement sound water quality management programs based upon long-range economic and water quality benefits to an entire basin.

   iv. Institutional and financial programs for implementation of consolidated wastewater management systems must be tailored to serve each particular area in an equitable manner.

   v. Wastewater reclamation and reuse systems which assure maximum benefit from available fresh water resources shall be encouraged. Reclamation systems must be an appropriate integral part of the long-range solution to the

water resources needs of an area and incorporate provisions for salinity control and disposal on nonreclaimable residues.

The Basin Plan includes a wastewater reuse policy that encourages the reclamation and reuse of wastewater where practicable and requires as part of a Report of Waste Discharge an evaluation of reuse and land disposal options as alternative disposal methods.

State and federal antidegradation policies require dischargers to demonstrate that degradation from new or expanded discharges are necessary, and to implement BPTC of the discharge necessary to maintain the highest water quality consistent with maximum benefit to the people of the State. Regionalization, reclamation, reuse and conservation may enhance the implementation of these policies.

The Discharger requested in the ROWD the authorization to increase the discharge flow from 1.5 MGD to 1.9 MGD, authorization to discharge when effluent receives 10:1 dilution, and an extension of the surface water discharge season. Based on these requests, it is appropriate to require the Discharger to evaluate the feasibility of alternative disposal options, including optimization of waste water recycling and reclamation, optimization of conservation measures, consideration of regional solutions (i.e., regionalization), and reuse and land disposal options as alternative disposal methods.

e. **Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal.

3. Best Management Practices and Pollution Prevention

a. **Salinity Evaluation and Minimization Plan.** An Evaluation and Minimization Plan for salinity is required in this Order to ensure adequate measures are developed and implemented by the Discharger to reduce the discharge of salinity to the North Fork Calaveras River.

4. Construction, Operation, and Maintenance Specifications

a. **DLDA Operating Requirements.** The operation and maintenance specifications for the DLDA are necessary to ensure proper operation of the land discharge facilities and minimize the potential for impacts to groundwater quality.

b. **Trickling Filter Operating Requirements.** The peak wet weather flow through the trickling filter treatment facility shall not exceed 0.9 MGD. This provision limits the peak wet weather flow through the trickling filter to its design capacity. The Discharger is planning to construct improvements to increase the treatment capacity of the trickling filter. Upon completion of the improvements this Order may be reopened to modify this operation requirement accordingly.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. The Discharger treats all primary and secondary sludge in a heated unmixed anaerobic digester. Drying of digested sludge is accomplished by using sand drying beds. Dried sludge is then stored on-site, characterized, and disposed of at the Calaveras County Landfill. This Order requires the Discharger to comply with sludge/biosolids discharge specifications, biosolids disposal requirements, and biosolids storage requirements.

b. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on 2 May 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

   Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the Facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

6. Other Special Provisions

a. **Ownership Change.** To maintain the accountability of the operation of the Facility, the Discharger is required to notify the succeeding owner or operator of the existence of this Order by letter if, and when, there is any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger.

7. Compliance Schedules

a. **Compliance Schedules for Final Effluent Limitations for Ammonia and Diazinon.** The Discharger submitted a request, and justification dated 2 January 2009, for a compliance schedule for ammonia and diazinon. This Order establishes compliance schedules for the new, final, water quality-based effluent limitations for ammonia and diazinon and requires full compliance by **1 February 2014.**

VIII. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will

serve as a National Pollutant Discharge Elimination System (NPDES) permit for San Andreas Sanitary District, Wastewater Treatment Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on **12 January 2009.**

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	5 February 2009
Time:	8:30 am
Location:	Regional Water Quality Control Board, Central Valley Region 11020 Sun Center Dr., Suite #200 Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is http://www.waterboards.ca.gov/rwqcb5/ where you can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must

be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (916) 464-3291.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Ken Landau at (916) 464-4726.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Aluminum, Total Recoverable	µg/L	380	11	200	750[1]	--	--	--	--	200	No[2]
Ammonia Nitrogen, Total (as N)	mg/L	14	<0.1	2.14	2.14[1]	4.34[3]	--	--	--	--	Yes
Antimony, Total Recoverable	µg/L	0.4	<0.1	6	--	--	14	4,300	--	6	No
Arsenic, Total Recoverable	µg/L	0.8	0.4	10	340	150	--	--	--	10	No
Asbestos	MFL	2	NA	7	--	--	7	--	--	7	No
Barium, Total Recoverable	µg/L	22	48	1,000	--	--	--	--	--	1,000	No
Bis (2-Ethylhexyl) phthalate	µg/L	55	<0.1	1.8	--	--	1.8	5.9	--	--	Yes
Cadmium, Total Recoverable	µg/L	0.1	0.05	1.63	2. 4	1.63	--	--	--	5	No
Chlordane	µg/L	0.12	<0.02	ND	2.4	0.0043	0.00057	0.00059	ND	--	Yes
Chloride	mg/L	59	16	106[4]	--	--	--	--	--	250	No
Chloroform	µg/L	5.7	<0.09	80	--	--	--	--	--	80	No
Chromium, Total Recoverable	µg/L	1	0.4	50	--	--	--	--	--	50	No
Copper, Total Recoverable	µg/L	32	1.1	5.9	8.5	5.9	1,300	--	--	1,000	Yes
Cyanide, Total (as CN)	µg/L	37	<0.8	5.2	22	5.2	700	220,000	--	150	Yes
Diazinon	µg/L	0.42	<0.02	0.05[5]	--	--	--	--	--	--	Yes
Dichlorobromomethane	µg/L	1.6	<0.08	0.56	--	--	0.56	46	--	80	Yes
Electrical Conductivity @ 25°C	µmhos/cm	1,363	310	700[4]	--	--	--	--	--	900	No[6]
Fluoride	µg/L	50	82	2,000	--	--	--	--	--	2,000	No
Iron, Total Recoverable	µg/L	720	870	300	--	--	--	--	--	300	Yes
Lead, Total Recoverable	µg/L	0.83	<0.05	1.6	40	1.6	--	--	--	15	No
Manganese, Total Recoverable	µg/L	80	41	50	--	--	--	--	--	50	No[7]
Mercury, Total Recoverable	µg/L	0.019	0.0032	0.050	--	--	0.050	0.051	--	2	No
Methylene Blue Activated Substances	µg/L	5,600	13	500	--	--	--	--	--	500	No[8]
Methylene Chloride	µg/L	0.08	<0.08	4.7	--	--	4.7	1,600	--	5	No
Nickel, Total Recoverable	µg/L	2.9	1.5	33	300	33	610	4,600	--	100	No
Nitrate Nitrogen, Total (as N)	mg/L	8.9	<0.1	10	--	--	--	--	--	10	No
Nitrate Plus Nitrate (as N)	mg/L	9.8	NA	10	--	--	--	--	--	10	No
Nitrite Nitrogen, Total (as N)	mg/L	0.89	<0.03	1	--	--	--	--	--	1	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Phosphorus	µg/L	8,300	23	--	--	--	--	--	--	--	No
Selenium, Total Recoverable	µg/L	1.2	0.7	5	20	5	--	--	--	20	No
Silver, Total Recoverable	µg/L	0.4	<0.02	1.5	1.5	--	--	--	--	100	No
Sulfate	mg/L	73	30	250	--	--	--	--	--	250	No
Sulfide	µg/L	48	<100	--	--	--	--	--	--	--	No
Sulfite	µg/L	2,000	NA	--	--	--	--	--	--	--	No
Thallium, Total Recoverable	µg/L	<0.01	0.1	1.7	--	--	1.7	6.3	--	2	No
Toluene	µg/L	2	<0.06	150	--	--	6,800	200,000	--	150	No
Total Dissolved Solids	mg/L	480	190	450[4]	--	--	--	--	--	500	No[6]
Zinc, Total Recoverable	µg/L	160	2	77	77	77	--	--	--	5,000	Yes

MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
NA = Not Available

Footnotes:
1 USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-Hour Average
2 See section IV.C.3.f for rational for reasonable potential determination
3 USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-Day Average
4 Water Quality for Agriculture
5 Department of Fish and Game water quality criterion for the protection of freshwater aquatic life
6 See section IV.C.3.t for rationale for reasonable potential determination
7 See section IV.C.3.p for rationale for reasonable potential determination
8 See section IV.C.3.q for rationale for reasonable potential determination

ATTACHMENT H – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
29	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethylene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
23	Chlorodibromomethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
86	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
3	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/ 515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as $CaCO_3$)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO_3)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	°F		
	Total Disolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

(1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.

(2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.

(3) - For haloethers

(4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22 C.

(5) - For nitrophenols.

(6) - For chlorinated naphthalenes.

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.

(9) - Criteria for sum of alpha- and beta- forms.

(10) - Criteria for sum of all PCBs.

(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:

Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluoresence, US EPA

Dioxin and Furan Sampling

Section 3 of the State Implementation Plan requires that each NPDES discharger conduct sampling and analysis of dioxin and dibenzofuran congeners. Dioxin and Furan sampling shall be conducted in the effluent and receiving water once during the third surface water discharge season of this permit term.

Each sample shall be analyzed for the 17 congeners listed in the table below. High Resolution GCMS Method 8290, or another method capable of individually quantifying the congeners to an equivalent detection level, shall be used for the analyses.

For each sample the Discharger shall report:

- The measured or estimated concentration of each of the 17 congeners
- The quantifiable limit of the test (as determined by procedures in Section 2.4.3, No. 5 of the SIP)
- The Method Detection Level (MDL) for the test

The TCDD equivalent concentration for each analysis calculated by multiplying the concentration of each congener by the Toxicity Equivalency Factor (TEF) in the following table, and summing the resultant products to determine the equivalent toxicity of the sample expressed as 2,3,7,8-TCDD.

Congener	TEF
2,3,7,8-TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01